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Simulation studies for LHCb ECAL upgrade

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The LHCb experiment at the Large Hadron Collider (LHC) will undergo a major upgrade of its electromagnetic calorimeter (ECAL) during Long Shutdown 4 (LS4). To optimize the ECAL design and enhance its physics performance, we evaluate the energy/time resolution through simulations of a single prototype based on different setups. Additionally, we evaluate the ECAL's response in different physics processes by simulating various decay channels. These studies provide key insights into the ECAL's design specifications and its expected performance in future LHCb data-taking.

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